Rangeland Suitability Determination

Including a Map of Suitable Rangelands and Active Livestock Grazing Allotments on the Rio Grande National Forest

A Report to Address the Deputy Under Secretary's Discretionary Appeal Review Decision Direction for the Rio Grande National Forest's 1996 Revised Forest Plan FEIS and ROD

Rio Grande National Forest
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I. BACKGROUND

Regional Forester Elizabeth Estill signed the Record of Decision for the Revised Rio Grande National Forest Land and Resource Management Plan (Forest Plan) on November 7, 1996. The Rio Grande National Forest (RGNF) received several appeals of the Forest Plan and its accompanying Final Environmental Impact Statement (FEIS)[1], one of which was from Colorado Environmental Coalition (CEC) *et al*. On January 19, 2001, the Chief of the Forest Service rendered a decision on CEC's appeal. On March 29, 2001, the Deputy Under Secretary for Natural Resources and Environment, Department of Agriculture, completed a discretionary review of the Chief's decision on the appeal. The Deputy Under Secretary affirmed in part and reversed in part the Chief's decision and provided a new set of instructions for the Forest to complete. One of these instructions was as follows:

> "*Develop a new livestock grazing suitability determination as required by the Chief's decision including a map of rangelands that shows where grazing permits have been issued."*

The legal framework for management of rangeland resources and the rangeland capability and suitability determination were discussed in the Forest Plan FEIS (pages 3-181 to 3-192). The Deputy Under Secretary found the FEIS rangeland capability determination to be satisfactory and affirmed the determination. However, the Deputy Under Secretary agreed with the Chief and found the rangeland suitability determination to be inadequately documented and unclear, and directed the Forest to develop a new rangeland suitability determination.

This report documents the new rangeland suitability analysis process, presents the results, and makes a brief comparison of the 1996 and 2002 analyses. A map showing the area where livestock grazing permits have been issued is provided in section V of this report. This report concludes with the findings relative to the Interdisciplinary Team's (IDT's) analysis of the land determined suitable for livestock grazing.

[1] All references to "FEIS" in this report refer to the 1996 Forest Plan Final Environmental Impact Statement for the Revised Land and Resource Management Plan, Rio Grande National Forest, unless noted otherwise.

II. RANGELAND CAPABILITY AND SUITABILITY

This report addresses livestock grazing, which is defined as grazing allowed under a permit on the national forest where the primary purpose is related to livestock production. Other types of valid grazing include use by recreation stock and wildlife, but those uses are outside the scope of this report.

Livestock grazing on the RGNF is governed by both Forest Plan and project-level decisions. The National Forest Management Act (NFMA) and its associated implementing regulations require the Forest Service to integrate individual resource plans into the Forest Plan, including the grazing resource (36 CFR 219.20). The capability of National Forest System (NFS) lands to producing forage and the suitability (or appropriateness) of allocating it to livestock are determined in the analysis for the Forest Plan.

Once the Forest Plan Record of Decision determines suitable rangeland and designates where and under what restrictions livestock grazing may be permitted, rangeland management prescriptions are developed to address these grazing lands at the project level. The project level decision then provides for the permitting of the appropriate livestock grazing to achieve desired resource conditions using site-specific grazing systems, appropriate stocking rates, rangeland improvements (structural and non-structural), and coordination with other resources at the allotment management planning (AMP) level. Rangeland identified as suitable for domestic livestock grazing at the Forest Plan level may include smaller inclusions that are not appropriate for domestic livestock grazing when analyzed at the site-specific level (e.g., some wetlands). Site-specific analysis at the allotment (or multi-allotment scale) provides additional information used in developing an allotment management plan for a given allotment(s). Additional rangeland may be identified as suitable or unsuitable for livestock grazing at this site-specific AMP project-analysis level. Lands in less than a satisfactory condition include a plan for restoration.

Rangeland capability and suitability are closely connected and it is important to understand the distinction between the two terms. Rangeland capability must be analyzed and established first before a rangeland suitability determination can be made. These two terms are defined below as follows:

Rangeland Capability

The definition of rangeland capability is as follows (from 36 CFR 219.3 and Forest Service Manual (FSM) 1905):

Capability: The potential of an area of land to produce resources, supply goods and services, and allow resource uses under an assumed set of management practices and at a given level of management intensity. Capability depends upon current resource conditions and site conditions such as climate, slope, landform, soils, and geology, as

well as the application of management practices, such as silviculture or protection from fire, insects, and disease.

Capability is the initial step in the determination of suitability. It is portrayed as a separate step both for reasons of clarity and because the actual product of "capability" often has utility in planning beyond its role in the determination of Suitability. For forest planning purposes, rangeland capability does not vary by alternative and is therefore only determined once during the land management planning process.

Rangeland Suitability

The definition of rangeland suitability is as follows (from 36 CFR 219.3 and FSM 1905):

Suitability: The appropriateness of applying certain resource management practices to a particular area of land, as determined by an analysis of the economic and environmental consequences and the alternative uses forgone. A unit of land may be suitable for a variety of individual or combined management practices.

Rangeland suitability is a determination of the appropriateness of grazing on capable lands based on economic and environmental consequences and consideration of alternative uses foregone if grazing is allowed. Rangeland suitability may vary by alternative or grouping of similar alternatives being considered in the land management planning process.

III. THE 1996 FOREST PLAN FEIS RANGELAND SUITABILITY DETERMINATION

The 36 CFR 219.3, 36 CFR 219.20, and the *Rangeland Analysis and Management Training Guide 1994*[2] were used as the technical references to guide the analysis and determination of rangeland capability and suitability in the 1996 Forest Plan FEIS. The determination of lands capable of and suitable for livestock grazing is presented in the Forest Plan FEIS (pages 3-181 to 3-192) for each alternative. The best information available at the time was used in making the determination. Some of the narrative in the FEIS was unclear and there was a typographical error in the acreage display in Table 3-46 (FEIS page 3-189) that led to some confusion. Consequently, the Forest was instructed to develop a new rangeland suitability determination.

There were seven alternatives originally analyzed in the FEIS, and Alternative G was the selected Alternative (see Record of Decision for the Forest Plan). Alternatives varied in the number of suitable acres. This was primarily due to the different number of closed allotments

[2] USDA Forest Service. 1994. Rangeland Analysis and Management Training Guide. Rocky Mountain Region, US Forest Service. Denver, CO. This publication was subsequently updated in August, 1996.

and Research Natural Areas (RNAs) proposed by each alternative. Alternatives A, D, E, F, and G closed eight livestock grazing allotments, while Alternatives B and NA did not close any livestock grazing allotments. Alternatives A, B, D, E, and F proposed seven RNAs, while Alternative G selected six RNAs. Alternative NA proposed no RNAs. The results of the 1996 rangeland suitability determination are summarized in Table 1 below.

Table 1. RGNF 1996 Rangeland Suitability Summary by Alternative.

		Alternatives						
		A	**B**	**D**	**E**	**F**	**G**[1]	**NA**
Net NFS Acres		1,856,757	1,856,757	1,856,757	1,856,757	1,856,757	1,856,757	1,856,757
SUITABLE DETERMINATION	**Suitable Acres**	**556,329**	**572,729**	**556,329**	**556,329**	**556,329**	**576,996**	**617,106**
	Difference From Alt. G	-20,667	-4,267	-20,667	-20,667	-20,667	0	+40,110
	Percent of Net NFS Suitable for livestock grazing	30.0%	30.8%	30.0%	30.0%	30.0%	31.1%	33.2%

[1] Alternative G was selected by the Regional Forester in the Record of Decision for the 1996 Forest Plan.

Source: adapted from Table 3-46, FEIS page 3-189.

Approximately 576,996 acres on the RGNF (31.1 % of the net Forest acres) were determined to be suitable rangeland for livestock grazing in 1996.

IV. THE 2002 RANGELAND CAPABILITY AND SUITABILITY ANALYSIS AND DETERMINATION

In response to the Deputy Under Secretary's instructions, the IDT developed a new rangeland suitability analysis in 2002 by using a formal process found in the R2 Planning Desk Guide, Appendix G titled, "*Rangeland Suitability for Livestock Grazing at the Forest Plan Level and Standards for NEPA Display – November, 2002*." Hereafter, this is referred to as the *Regional Process* in this report. The *Regional Process* was not available during the time of the Forest Plan revision. It was developed to better standardize, refine, and document rangeland suitability determinations for the national forests in Region 2. The best and most current resource data and Geographic Information System (GIS) information available were used to develop the 2002 rangeland suitability determination.

Like the rangeland suitability analysis done in 1996, the 2002 analysis considered other uses or values of the area, and also identified areas where livestock grazing was not appropriate. *Uses foregone* were also analyzed relative to their affect upon livestock resource management. This report briefly describes the process and information used to arrive at a determination of lands that are suitable for livestock grazing. Additional supporting information used to develop this report is in the administrative record as follows: 1) The *Regional Process*; 2) documentation of

the GIS acreage deduction process for determining rangeland capability (paper titled, "Process for Determination of Rangeland Capability"), and 3) an Economic Analysis.

The first step in determining rangeland suitability was to determine capability and non-capability of rangelands following the *Regional Process*. The IDT documented the step-by-step acreage reductions for capability in a paper titled, "Process for Determination of Rangeland Capability" and it is found in the administrative record. Briefly, we documented the technical GIS procedures to deduct acres based on the criteria in the *Regional Process* steps. Capable rangeland acres are shown in Table 2 below.

Once rangeland capability is determined, the *Regional Process* lists steps to identify rangeland suitability. Suitable rangeland varies by Alternative and the results are summarized in Table 2. All areas suitable for cattle grazing are included in the areas suitable for sheep grazing, therefore Table 2 displays the final suitability determination for the RGNF, by Alternative.

Table 2. RGNF 2002 Rangeland Capability and Suitability Summary by Alternative.

		Alternatives						
		A	**B**	**D**	**E**	**F**	**G**[1]	**NA**
Net NFS Acres[2]		1,856,564	1,856,564	1,856,564	1,856,564	1,856,564	1,856,564	1,856,564
CAPABLE DETERMI-NATION	Non-Capable Acres	1,182,802	1,182,802	1,182,802	1,182,802	1,182,802	1,182,802	1,182,802
	Capable Acres	673,762	673,762	673,762	673,762	673,762	673,762	673,762
SUITABLE DETERMINATION	Non-suitable Acres	100,950	87,496	100,950	100,950	100,950	92,206	73,394
	Suitable Acres	**572,812**	**586,266**	**572,812**	**572,812**	**572,812**	**581,556**	**600,368**
	Difference From Alt. G	-8,744	4,710	-8,744	-8,744	-8,744	0	18,812
	Percent of Net NFS Suitable for livestock grazing	30.9%	31.6%	30.9%	30.9%	30.9%	31.3%	32.3%

[1] Alternative G was selected by the Regional Forester in the Record of Decision for the 1996 Forest Plan.
[2] Net NFS acreage has changed since 1996 due land status adjustments.

Source: Forest GIS coverages

The specific *Regional Process* steps are reiterated below to show how the IDT addressed each adjustment in the suitability determination process as follows:

Step 1	This step subtracted areas determined to be non-capable as determined in the capability determination referenced above. Areas determined to be non-capable are, by default, also non-suitable.
Step 2 (part 1)	Transitory rangeland was added. Transitory rangeland was identified as a special short-term instance where suitability occurred because of the removal of the overstory vegetation (e.g., by fire or timber harvest) in an area where livestock grazing would normally be considered non-capable. These areas were generally considered to be suitable for livestock grazing only for the estimated time that it would take for the canopy to once again close back to 60% or greater and if they are expected to remain within that criteria for the life of the Forest Plan, and only if the costs or viability of adequately mitigating effects relative to livestock grazing on forest vegetation regeneration was acceptable. The long-term site potential in these areas is normally a moderate to dense forest canopy with little understory production.
Step 2 (part 2)	This step subtracted areas that currently have an overstory of tree canopy cover and/or unpalatable shrub canopy cover greater than 70% (from Integrated Resource Inventory -- Common Vegetation Unit cover).
Step 3	This step subtracts Management-Area Prescriptions where there are Standards and Guidelines (S&Gs) that preclude livestock grazing. It also includes previous decisions stating that livestock grazing is incompatible with the planned land management prescription and the proposed alternative continues that incompatibility finding. The RGNF has two Management-Area Prescriptions that preclude livestock grazing; Research Natural Areas (2.2) and Ski Areas (8.22). The Ski Area was subtracted in Step 4.
Step 4	This step considered fenced recreation areas, developed recreation sites, the ski area, minerals production sites, fenced cultural or special management sites, permanent exclosures, and other appropriate special use sites where livestock use was determined to be incompatible with the primary land use and/or where the alternative proposed to exclude livestock use for safety or other reasons. These areas were subtracted where applicable.
Steps 5 and 6	This step considered fenced areas along primary (Step 5) and secondary (Step 6) roads. The RGNF does not have any fenced road right-of-ways (ROWs) to fully exclude livestock grazing on National Forest System lands, so there was no subtraction for this step.
Step 7	This step considered buffering railroads but did not subtract any area, since there is no fenced or proposed fenced railroad ROW on the RGNF.
Step 8	This step subtracted any other areas the alternatives proposed for closure to livestock grazing. This step considered areas on the RGNF where no livestock allotments exist or where allotments were administratively closed.

Step 9	This step considered areas where decisions had been made or were proposed in an alternative to exclude specific Threatened, Endangered, and Sensitive (TES) habitats from livestock grazing where there is a potential incompatibility with the viability of the habitat or species through the life of the Forest Plan. These areas on the RGNF consist of small, site-specific habitats that have been fenced and excluded from livestock grazing. However, their total acreage is inconsequential for this suitability determination.
Step 10	This step considered areas where conflicts could potentially occur between livestock grazing and other resources to the extent that the conflicts could not be resolved or satisfactorily mitigated, and/or where the alternative proposes that other resource values take precedence over livestock use. Other resource uses or *uses foregone* were evaluated during the FEIS analysis process and, where appropriate, these areas were excluded from the suitable land base (Tables 3 and 4). The lands determined to be incompatible with livestock grazing due to resource concerns were identified in the previous steps. No additional areas were subtracted that had not already been considered in previous steps. Any potential conflicts were either mitigated or resolved through standards and guidelines, alternative design, and/or livestock grazing allocations rather than through suitability subtraction. The *uses foregone* analysis conducted in the FEIS was reviewed and validated (see the **Alternative Uses Forgone** subheading presented later in section IV for more details).
Step 11	This step considered areas where the IDT determined that livestock grazing was not economically feasible when considering the costs of complying with applicable laws, regulations, and Forest Plan standards. This step does not make free market decisions but rather evaluates the costs of mitigations and constraints and management activities that would be needed to ensure compliance. No additional acres were found to be economically un-feasible and none were subtracted from this step. See the **Economic Analysis** subheading presented later in section IV for more details).
Step 12	This final step identifies the remaining acreage as Suitable Rangeland, as determined at the Forest Planning level in compliance with Forest Planning Regulations.

Tables 3 and 4 below summarize the suitability acreage adjustment process for Alternative G for cattle and sheep, respectively, and reflect the steps listed above. Equivalent tables were developed for Alternatives A, B, D, E, F, and NA and they are in the administrative record. Alternative G suitable rangelands are shown in Figure 1. Equivalent maps were developed for Alternatives A, B, D, E, F, and NA and they are in the administrative record.

Table 3. The *Regional Process* Steps for Rangeland Suitability for Alternative G (Cattle).		
Rangeland Suitability Steps – Cattle	**Acreage**	
Classification/Description	**Adjustment**	**Running Total**
Net National Forest System acres		1,856,564
Deductions for Non-Capable acres	-1,263,778	592,786
Capable Acres		592,786
Transitory rangeland temporarily added to the capable acres	+42,032	634,818
Deductions for Non-Suitable acres		
Existing canopy cover > 70%	-68,013	566,805
Management-area prescription (S&G's) excludes livestock grazing: (i.e., Research Natural Areas)	-5,294	561,511
Excluded recreation sites (includes the ski area)	-1,749	559,762
Administrative sites excluded from grazing (excepting administrative horse pastures)	0	559,762
Minerals production sites	0	559,762
Fenced cultural/Special Management Areas	0	559,762
Permanent exclosures	-53	559,709
Special Use Sites excluded from grazing	0	559,709
Road ROW - excluded from grazing	0	559,709
Railroad ROW - excluded from grazing	0	559,709
Areas not within allotments or areas closed to grazing by decision (i.e., closed allotments)	-28,332	531,377
TES habitat permanently excluded from grazing	<1	531,377
Acres determined to be economically infeasible for livestock grazing.	0	531,377
Other areas identified by IDT to be excluded from grazing due to uses foregone / environmental effects.	0	531,377
Capable and Suitable Rangeland for Cattle		**531,377**

Table 4. The *Regional Process* Steps for Rangeland Suitability for Alternative G (Sheep).		
Rangeland Suitability Steps – Sheep	**Acreage**	
Classification/Description	**Adjustment**	**Running Total**
Net National Forest System acres		1,856,564
Deductions for Non-Capable acres	-1,182,802	673,762
Capable Acres		673,762
Transitory rangeland temporarily added to the capable acres	+42,032	715,794
Deductions for Non-Suitable acres		
Existing canopy cover > 70%	-88,065	627,729
Management-area prescription (S&G's) excludes livestock grazing: (i.e., Research Natural Areas)	-5,359	622,370
Excluded recreation sites (includes the ski area)	-1,749	620,621
Administrative sites excluded from grazing (excepting administrative horse pastures)	0	620,621
Minerals production sites	0	620,621
Fenced cultural/Special Management Areas	0	620,621
Permanent exclosures	-53	620,568
Special Use Sites excluded from grazing	0	620,568
Road ROW - excluded from grazing	0	620,568
Railroad ROW - excluded from grazing	0	620,568
Areas not within allotments or areas closed to grazing by decision (i.e., closed allotments)	-39,013	581,556
TES habitat permanently excluded from grazing	<1	581,556
Other areas identified by IDT to be excluded from grazing due to uses foregone / environmental effects.	0	581,556
Acres determined to be economically infeasible for livestock grazing.	0	581,556
Capable and Suitable Rangeland for Sheep		**581,556**

All areas suitable for cattle grazing are included in the areas suitable for sheep grazing. For Forest Planning purposes, the combined "capability" and "suitability" analysis constitutes a Suitability Determination. Therefore, the bottom of Table 4 above displays the final rangeland suitability determination for the RGNF. Approximately 581,556 acres on the RGNF (31.3 % of the net Forest acres) is determined to be suitable rangeland for livestock grazing. Suitable rangelands for the RGNF (Alternative G) are spatially illustrated in Figure 1.

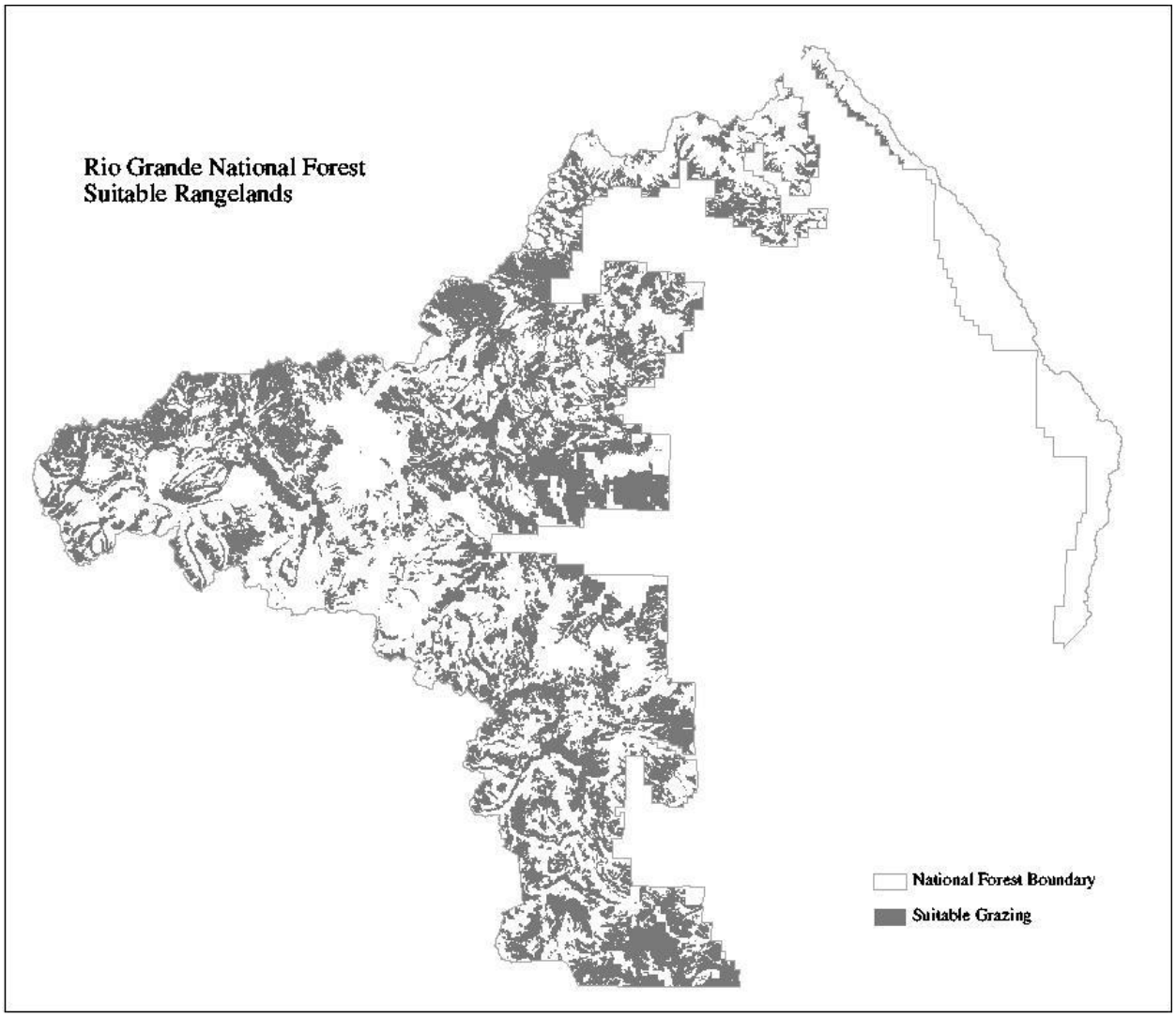

Figure 1. 2002 Suitable Rangelands on the Rio Grande National Forest (*source: 2002 revised range suitability map for Alternative G*).

Alternative Uses Foregone

Rangeland suitability determinations in this analysis and the FEIS involve the analysis of the environmental consequences (which include "alternative uses forgone," although this term is not commonly used) of allowing livestock grazing in a particular area. The term "alternative uses foregone" indicates that livestock grazing is incompatible with some other uses and, if grazing was allowed, the other uses could not occur. This represents the greatest degree of environmental consequences from livestock grazing. In most cases, on national forests, an area of land is suitable for a variety of individual or combined management practices. While livestock grazing may have environmental effects, proper grazing rarely precludes other uses.

Step 10 of the *Regional Process* has the IDT consider areas where conflicts may occur between livestock grazing and other resources to the extent that the conflicts cannot be resolved or

satisfactorily mitigated, and where the other resource values are proposed in the alternative to take precedence and thereby preclude livestock use. These areas could be classified as unsuitable for livestock grazing.

The environmental consequences, including consideration of other resource uses, were evaluated during the FEIS analysis process and in the 2002 rangeland suitability determination. Where appropriate, areas were excluded from the suitable land base. The IDT did not deduct any additional acres in the 2002 analysis that had not already been previously deducted through other *Regional Process* steps. Any potential conflicts were either mitigated or resolved through standards and guidelines, alternative design, and/or livestock grazing allocations rather than classifying the rangeland as unsuitable for livestock grazing. The environmental consequences analysis conducted in the FEIS was reviewed and validated.

Areas determined to be inappropriate for livestock grazing due to other resource considerations were subtracted from the suitability acreage tally. These areas included the following:

- Research Natural Areas where, in some FEIS alternatives, livestock grazing was determined to be inappropriate in proposed RNA's because it could conflict with the intent of the designation for scientific research in natural areas.
- The Wolf Creek Ski Area where livestock grazing could conflict with the operation and maintenance of the ski area.
- TES habitat where livestock grazing could have a potential adverse effect on TES populations. These areas have been fenced to protect the habitat.
- Special-use areas where livestock grazing is not compatible with the special-use designation.
- Fenced recreation sites where livestock grazing is not compatible with the desired recreation experience or could conflict with the operation and maintenance of the recreation site. However, very limited livestock grazing is allowed in some of these sites as a method to reduce fuels.
- Permanent research exclosures where livestock use is excluded.
- Municipal watersheds where livestock grazing could impact public drinking water.

Livestock grazing by exception was allowed in some areas where only occasional grazing was allowed under specific circumstances in consideration of other resource uses. Areas such as campgrounds and administrative sites are not suitable for livestock grazing on a regular basis. However, these areas may be grazed occasionally where it is deemed appropriate to reduce fuel loading or for noxious weed treatment.

In many areas the environmental effects were reduced by the application of standards and guidelines, by not permitting livestock grazing in site-specific areas, and by restricting or limiting grazing in areas to meet other multiple-use objectives rather than classify these areas as unsuitable for grazing. The following are examples of Management-Area Prescriptions standards and guidelines that specify additional requirements for livestock grazing:

- Wilderness (Pristine) -- Consider management options regarding the status of allotments during the environmental-assessment and Allotment Management Plan (AMP) process.

- Wilderness (Primitive) -- Same condition as immediately above.
- Wilderness (Semi-primitive) – Same condition as immediately above.
- Special Interest Areas (SIAs) -- Allow livestock grazing if it does not conflict with the values for which the SIA was designated
- General Forest and Intermingled Rangelands -- Grazing of domestic livestock should be coordinated with timber management activities to ensure adequate regeneration and prevent impacts on rangeland improvements and natural barriers.
- Forest Products – Same condition as immediately above.
- Deer and Elk Winter Range – Livestock grazing strategies are implemented to achieve goals for deer and elk.
- Special Wildlife Areas (Bighorn Sheep) -- Grazing strategies should be implemented that include achievement of objectives for bighorn sheep herds.

The Forest Plan contains numerous Forest-wide Standards and Guidelines (S&Gs) to minimize impacts from livestock grazing. See S&Gs for Riparian Areas (Forest Plan pages III-5 to III-8, and S&Gs for Range (Forest Plan pages III-14 to III-16).

The effects on other forest resources and uses was also considered extensively throughout the FEIS as a part of the alternative design and the Chapter 3 effects analysis for each resource in terms of the interactions with rangeland management. The Forest Plan FEIS evaluates the interactions of rangeland management and other forest resources and uses on the following pages:

- Interactions of special concern plants and rangeland management (FEIS pages 3-88 to 3-94; Appendix E pages E-1 to E-14; Appendix G pages G-1 to G-8).
- Interactions of timber resources and rangeland management (FEIS page 3-197).
- Interactions of wildlife and wildlife habitat and rangeland management (FEIS pages 3-185 to 3-186; 3-195; 3-239 to 3-250)
- Interactions of the Range of Natural Variability and rangeland management (FEIS pages 3-192 to 3-193; Appendix A pages A-1 to A-77).
- Interactions of recreation and rangeland management (FEIS pages 3-194; 3-415 to 3-146).
- Interactions of Wilderness and rangeland management (FEIS pages 3-194; 3-350 to 3-351).
- Interactions of Roadless Areas and rangeland management (FEIS page 3-359).
- Interactions of Research Natural Areas and rangeland management (FEIS pages 3-195; 3-332 to 3-333; Appendix D page D-3).
- Interactions of Wild and Scenic Rivers and rangeland management (FEIS pages 3-194; 3-369).
- Interactions of TES species and rangeland management (FEIS page 3-195; Appendix F pages F-1 to F-23; Appendix H pages H-1 to H-6; Appendix G pages G-1 to G-8).
- Interactions of riparian and wetlands and rangeland management (FEIS pages 3-195 and 3-202).
- Interactions of soil, water and air quality and rangeland management (FEIS pages 3-196; 3-202; 3-262 to 3-263; 3-274 to 3-275; 3-292 to 3-293).

- Interactions of road management and rangeland management (FEIS page 3-196).
- Interactions of heritage resources and rangeland management (FEIS pages 3-196; 3-384).
- Interactions of pest management and rangeland management (FEIS page 3-196).
- Interactions of fire management and rangeland management (FEIS page 3-197).
- Interactions of mineral resources and rangeland management (FEIS pages 3-315; 3-327).
- Interactions of scenery resource and rangeland management (FEIS pages 3-429 to 3-430).

Economic Analysis

Step 11 of the *Regional Process* asks the IDT to consider reducing suitable acres where livestock grazing may not be economically feasible. Specifically, an economic suitability analysis was conducted for two purposes:

1) Determine cost efficiency (from 36 CFR 219.3, definition of suitability; and 36 CFR 219.20(b)) and,
2) Determine if areas that are not economically efficient under circumstances expected to prevail during the life of the Forest Plan should be classified as unsuitable where livestock grazing was not economically feasible when considering the costs of complying with applicable laws, regulations, and Forest Plan standards and guidelines.

There is no specific criterion for determining suitability based on economic efficiency. The NFMA does not require present net value to be positive for rangelands to be suitable. Grazing fees are not a determining factor since they are established by law and executive order and do not necessarily represent fair market value. Therefore, the economic suitability analysis included the budgetary impacts associated with allowing livestock grazing on land that was in unsatisfactory condition or land subject to legal requirements under the Endangered Species Act and other environmental laws. Economic suitability does not use free market decisions or returns to the treasury as a criterion, rather it evaluates the costs of mitigations and constraints and management activities that would be needed to ensure appropriate compliance on these lands.

The Forest Plan (Alternative G) was used to conduct the economic suitability analysis since it is the *action* alternative that identifies the greatest amount of Suitable rangelands, and these Suitable lands are included in the other action alternatives. Since all Management-Area Prescriptions that allow livestock grazing contain the same standards and guidelines for various grazing systems and vegetation types, only two grazing options – permit livestock grazing versus no livestock grazing – are analyzed. The grazing option is a representative profile of revenues, benefits, and costs that encompass the variety of grazing systems used on the RGNF. The no livestock grazing option is a representative profile of costs that encompasses the variety of administrative actions that would still occur without permitted livestock grazing. The economic suitability analysis was conducted from two perspectives; financial efficiency and economic efficiency. Financial considerations include only those revenues received by and costs incurred by the Forest Service. Economic considerations include the benefits and costs of livestock grazing to all of society. In this case, grazing permit holders (called permittees) costs and the market value of livestock production are included in the analysis. Cost and benefits of livestock

production for which monetary values are unavailable or are beyond those realized on National Forest System lands and benefits or costs are not included.

A summary of the results of the financial and economic suitability analysis are shown in Table 5. Although the analysis shown in Table 5 indicates that the net revenues and net benefits are negative, there is no standard for determining when lands must be declared economically unsuitable (CFR 219.20) and removed from grazing. Rather, the results of the analysis are used only as an administrative consideration. The analysis is useful for considering the opportunity costs of livestock grazing. Although both options show negative net costs of livestock grazing, the grazing permittees, who are the immediate recipients of grazing net benefits, may choose to continue grazing even while operating at a loss. Market forces will influence whether they continue to graze livestock on the RGNF. In the same way, the Forest Service has chosen to continue authorizing livestock grazing, even while program revenues do not cover program costs. Grazing fees are set by law, and often do not cover the program costs of grazing. Other community, social, and environmental benefits of grazing such as maintaining ranches for open space, traditional culture, and other local purposes are not included in this analysis.

Table 5. Summary of Economic Analysis for Rangeland Suitability (Alternative G).

Measure	Option 1 Permit Grazing[1]	Option 2 No Grazing
Head Months-Sheep	35,130	0
Head Months-Cattle	66,439	0
Head Months-Total	101,569	0
Net Forest Acres	1,856,564	1,856,564
Acres Capable	673,762	673,762
Acres Suitable	581,556	581,556
Acres/AUM	6.1	0
Revenue/Head Month-Sheep	$0.29	0
Revenue/Head Month-Cows	$1.43	0
Financial Efficiency Calculations per Acre per Year		
Present Value Revenues	$0.15	$0.00
Present Value Costs	-$1.68	-$3.00
Present Net Value	-$1.53	-$3.00
Economic Efficiency Calculations per Acre per Year		
Present Value Benefit	$1.72	Not applicable
Present Value Costs	-$3.53	Not applicable
Present Net Value	-$1.81	Not applicable

[1] 2002 Rangeland Suitability Determination for Alt. G (10-year average of stocking and revenues for the 2000 to 2009 period)

No areas were determined to be economically unsuitable for livestock grazing and no additional acres were removed from the rangeland suitability determination as a result of this economic suitability analysis. More detailed information is in the administrative record.

V. MAP OF ACTIVE LIVESTOCK GRAZING ALLOTMENTS

The Deputy Under Secretary's Discretionary Appeal Decision also required a map of rangelands that shows where livestock grazing permits have been issued. Grazing permit information was considered in the FEIS range resources analysis and the grazing suitability determination. However, it was not specifically illustrated in the FEIS. The Forest maintains a current list of active livestock allotments in order to coordinate Annual Operating Instructions with current grazing permittees and annual billing purposes.

Grazing permit information was also considered in the 2002 rangeland suitability analysis. It is displayed in Figure 2. The Forest Plan allows livestock grazing on suitable rangeland under all Management-Area Prescriptions except Research Natural Areas and Ski Areas, but only within active grazing allotments. Figure 2 shows both the Management-Area Prescriptions that allow livestock grazing and the currently active grazing allotments on the RGNF.

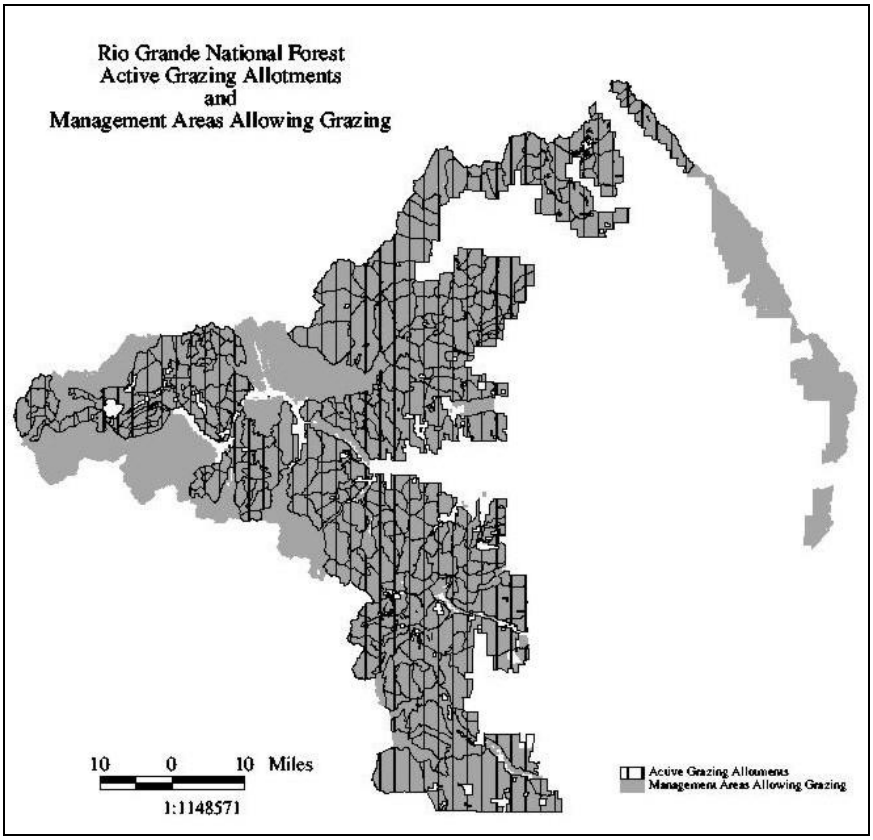

Figure 2. Management-Area Prescriptions that allow livestock grazing and the boundaries of the active grazing allotments on the Forest *(source: Forest's GIS database 2002)*.

Figure 2 has been revised slightly from the 1996 analysis to include minor allotment boundary realignments that have taken place on some of the allotments. The allotment boundaries were realigned to use an easily identifiable physical feature on the ground as a boundary marker to identify allotments for the ease of the grazing permit holders, the public, and the Forest Service administrators. Where practical, boundaries were shifted to ridge tops, valley bottoms or other logical topographic features. These changes did not affect the stocking rates on any of the allotments.

VI. DIFFERENCES BETWEEN THE 1996 AND 2002 RANGELAND SUITABILITY DETERMINATIONS

The difference between the 1996 suitable rangeland determination (576,996 acres – 31.1% of the net Forest acres) and the 2002 determination (581,556 acres – 31.3% of the net Forest acres) is 4,560 acres or a difference of less than 1% for Alternative G. The difference between the two analyses is primarily due to a refinement in rangeland mapping delineations, minor allotment boundary adjustments, and changes in NFS acres due to land exchange activity between 1996 and 2002.

The 1996 analysis was based on the Rocky Mountain Resource Information System (RMRIS) database, which was the best available at the time. Since then, the Forest has updated its resource information to a system called the Integrated Resource Inventory (IRI). The Common Land Unit (CLU), Common Water Unit (CWU) and the Common Vegetation Unit (CVU) form the basis of the IRI. There have also been refinements in the Forest's infrastructure mapping as well. The CVU reflects a refinement in vegetation mapping. For example, vegetation polygons are more accurately delineated, vegetation layers are described in greater detail, and spatial resolution is higher. The CVU minimum upland polygon size is 5 acres, and 2 acres for riparian polygons. The RMRIS minimum upland polygon size was 10 acres, and riparian areas often were not delineated at all.

Both rangeland suitability determinations used similar methodology. The 36 CFR 219.3, 36 CFR 219.20, and the *Rangeland Analysis and Management Training Guide 1994* were used as the technical references to guide the analysis and determination of rangeland capability and suitability in the 1996 Forest Plan FEIS. The 2002 analysis explicitly followed the process found in the R2 Planning Desk Guide, Appendix G titled, "*Rangeland Suitability for Livestock Grazing at the Forest Plan Level and Standards for NEPA Display – November, 2002*."

Finally, the 2002 analysis used a more refined economic suitability analysis (Quick-Silver version 5.004.45 – available on the web at: http://www.fs.fed.us/emc/nris/hd/qsilver/) than was used in the 1996 version (DGEcon). However, neither analysis identified any economically unsuitable rangelands.

VII. FINDINGS

Framework: This analysis and report were developed in response to the Deputy Under Secretary's appeal decision instructions. This section displays the findings of the Interdisciplinary Team in regards to the information developed in this analysis and its relationship to the Forest Plan FEIS. This report and findings are being provided to the Forest Supervisor so he can consider them in making his determination on whether to make a correction, supplement, or revision to the Forest Plan FEIS or reconsider the Record of Decision (ROD).

Direction for the consideration of this report is found in Forest Service Handbook (FSH) 1909.15(18) (1) *Review and Documentation of New Information Received After a Decision Has Been Made*:

> If new information or changed circumstances relating to the environmental impacts of a proposed action come to the attention of the responsible official after a decision has been made and prior to completion of the approved program or project, the responsible official must review the information carefully to determine its importance. If, after an interdisciplinary review and consideration of new information within the context of the overall program or project, the responsible official determines that a correction, supplement or revision to an environmental document is not necessary, implementation should continue. Document the results of the interdisciplinary review in the appropriate program or project file. If the responsible official determines that a correction, supplement, or revision to an environmental document is necessary, follow the relevant direction in section 18.2-4.

Additional applicable direction comes from 40 CFR 1502.9 (c) (1) (ii) *Draft, Final and Supplemental Statements*, which states: "Agencies shall prepare supplements to either draft or final environmental impact statements if …(ii) There are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts."

This section evaluates whether or not the analysis resulting from the Deputy Under Secretary's instructions created significant new circumstances or significant new information relevant to environmental concerns that may have a bearing on the Forest Plan, FEIS, or ROD. This report also provides technical information to the Forest Supervisor to assist him in determining whether or not a correction, supplement, or revision to the Forest Plan or FEIS is necessary.

Report Summary: The Deputy Under Secretary instructed the RGNF to develop a new rangeland suitability determination as required by the Chief's decision including a map of rangelands that shows where grazing permits have been issued.

The Interdisciplinary Team (IDT) reviewed the results of the rangeland suitability analysis for the RGNF. The IDT carefully considered the various aspects necessary to identify the location and area of lands determined to be suitable for livestock grazing on the RGNF. The IDT

concluded that the slight differences between the 1996 suitability determination and the 2002 suitability determination, including the new economic suitability analysis, had not resulted in a significant change in the original determination, documented in the Record of Decision (ROD) for the RGNF's 1996 Forest Plan FEIS. There is less than 1% difference in suitable acres between the two suitability determinations. Consequently, an amendment to the Forest Plan is not necessary and the appropriate level of livestock grazing can continue on the RGNF.

Finding: This report is responsive to the Secretary's direction to develop a new rangeland suitability determination, including a map of rangelands that shows where grazing permits have been issued. A new suitability determination has been made. The IDT concluded, after preparing this report, that there were no significant new circumstances or significant new information resulting from the new suitability determination. The IDT found the differences between the 1996 and 2002 suitability determinations to be minor, thereby validating the FEIS analysis. The effects are within the scope of the FEIS.

The IDT found no significant new circumstances or significant new information relevant to environmental concerns in this analysis that would have a bearing on the Forest Plan, FEIS, or ROD. No significant new circumstances or significant new information were found to suggest the need to correct, supplement, or revise the FEIS; or to reconsider the ROD for the Forest Plan due to the results of this analysis.

This report will be made available to the public, Federal, State and local agencies, elected officials, and organizations and will become part of the public record for the 1996 Revised Rio Grande National Forest Land and Resource Management Plan and its associated Final Environmental Impact Statement.